HOA Communication with
Regulators
Contractors
Homeowners

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Berkeley County
Goose Creek, SC
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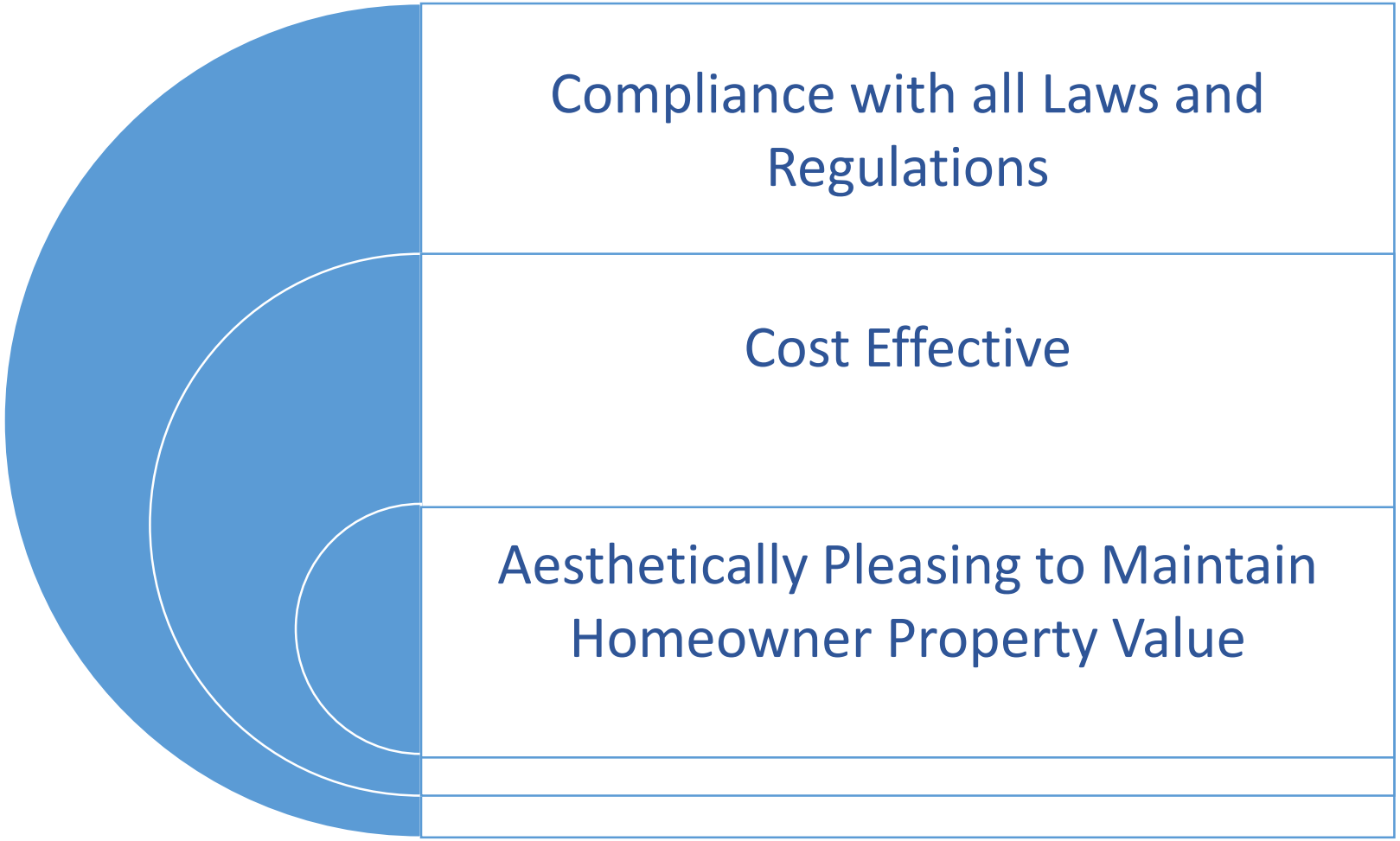
Stormwater Pond Management Conference

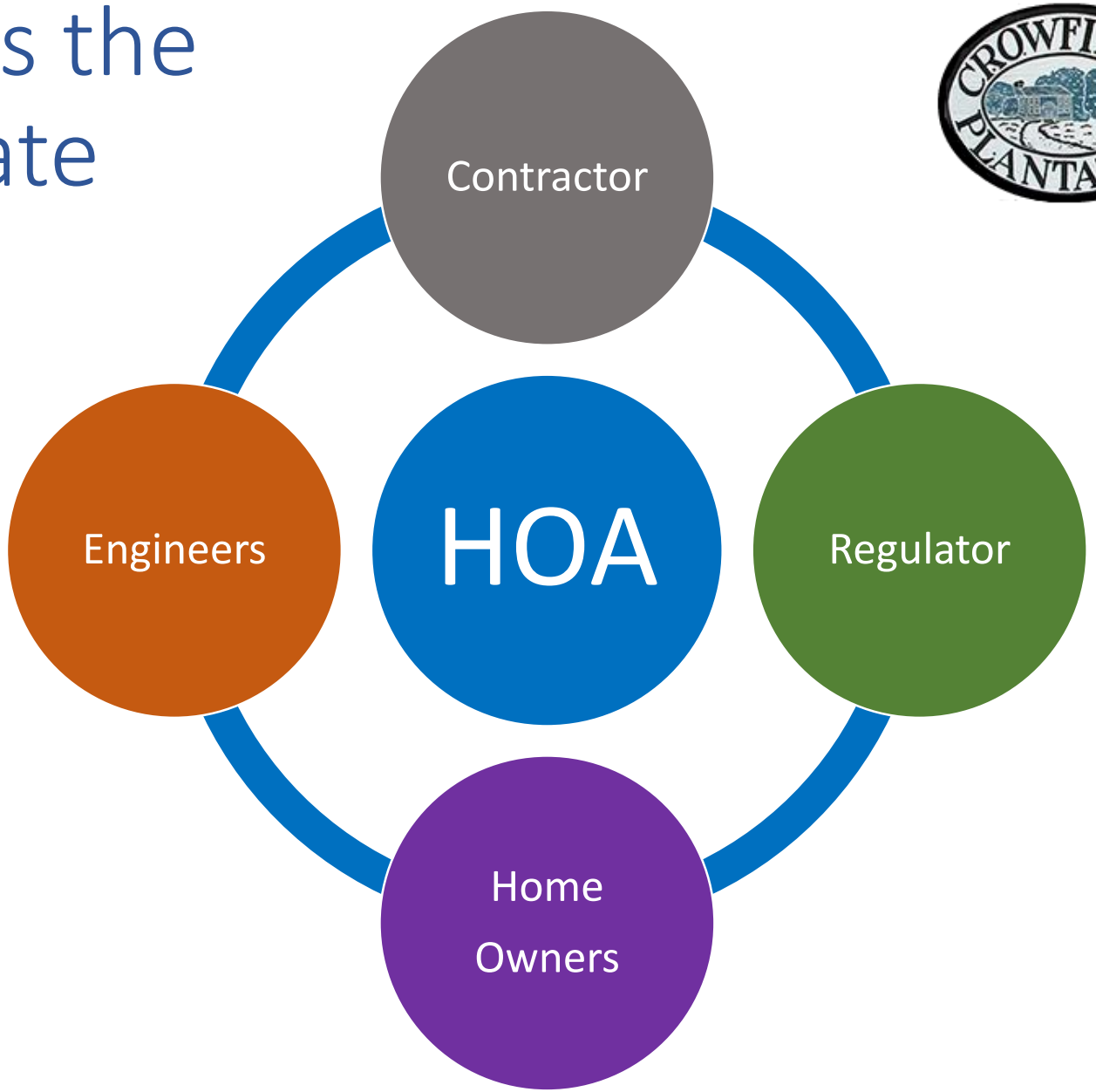
Pond Community Common Goal

Foster Practices That Result in Proactive Compliance

HOA Community Goal



With Whom does the HOA Communicate



HOA Communicating with Regulators

Berkeley County	• Storm Water Management for MS4 Structures • Roads and Bridges for roadside pipes, ditches, swales
Goose Creek	• Building Permits
DHEC	• Disturb Land-SCDHEC-OCRM Notice of Intent (Form 0451) • Dams Regional Engineering Center

Communication is a Two Way Street

Regulators to the HOA

- Processes that foster proactive voluntary HOA compliance
  - Simple to understand
  - Easy to implement
  - Lead to Cost Effective Solutions

HOA to the Regulator

- Learn & understand what the regulator needs to make a decision
- Use common tools
  - Berkeley County GIS
  - DHEC Watersheds Atlas Tool
- Use Common Language

Common Tools

- Berkeley County Stormwater Design Standards Manual
  - Learn what the regulator needs
  - Section for definitions
- FEMA 534 Technical Manual for Dam Owners
- Maps and Property Boundaries
  - Watershed Atlas Tool - https://gis.dhec.sc.gov/watersheds/
  - Berkeley GIS – https://www.berkeleycountysc.gov/drupal/gismapping
  - Charleston and Dorchester County also have GIS
  - Google Earth Pro

Contractor Communication Regulation

Regulation is Rocket Science

HOA

Regulation?

Homeowner Communication

2015

- Pond Committee in existence since 2015
- Committee Research
  - Clemson Extension Service website for technical processes
  - Freedom of Information to find old drawings
  - Chatted with knowledgeable engineers, scientists, HOAs, contractors

2016

- Developed the Vision
- Developed Goals
- Process to accomplish storm pond work
- Working to permit and accomplish needed maintenance
- Developing web-based training for homeowners
- Articles in quarterly newspaper

Homeowner Communication: Vision

The CPCSA will pursue cost effective Storm Retention Pond System management practices that are considered sustainable and of limited impact. The CPCSA will minimize the use of herbicide, fertilizer and other chemical methods while maximizing the use of natural vegetation and accepted engineering solutions to attain water quality goals while enhancing the aesthetics of common areas and maintaining value for the homeowners

Homeowner Communication: Goals

- CPCSA Pond Committee design and management goals are to maintain storm water structures (ponds, ditches, lakes etc.) to meet the following standards:
  - WATER QUALITY requirements of federal Clean Water Act (EPA), state regulatory (DHEC), Berkeley County MS4, and Goose Creek City MS4 requirements. (Note that this is a legal requirement)
  - WATER QUANTITY throughput volumes of storm water sufficient to prevent flooding in the Crowfield community
  - AESTHETIC STANDARDS that enhance the natural beauty of our Low Country Crowfield community while maintaining and/or improving homeowner property value
  - COST MINIMIZATION of methods chosen that include both initial installation, yearly maintenance, and long term water quality requirements

Homeowner Communication Water Quality

- Meet the technical requirements, both intent and the spirit
  - Federal Clean Water Act - Environmental Protection Agency
  - South Carolina legislation – Department of Health and Environmental Control
  - City of Goose Creek
    - MS4 permit holder
    - Goose Creek City Code 50
  - Berkeley County –
    - MS4 permit holder
    - Administrator of Goose Creek MS4 permit
    - Berkeley County Ordinance July 2014
  - Specifically, maintain CPCSA ponds and lakes
    - Meet or exceed appropriate chemical and particulate levels
    - Minimize the introduction of pollutants, nutrients and sediment into the Goose Creek/Cooper River water shed

Homeowner Communication: Water Quantity

- Apply techniques that improve water quality and minimize impediments to the flow of storm runoff. Specifically
  - Minimize increase of flow resistance in ponds, lakes and storm water structures
  - Ensure applied solutions
    - Maximize the through put of storm runoff
    - Minimize the probability of local flooding in Crowfield Plantation

Homeowner Communication: Competing Objectives

- It should be noted that there is a constant tradeoff between objectives
- Many techniques that improve water *Quality* decrease water flow
  - Decreasing water flow decrease the *Quantity* of storm water removed
  - Decreasing water Quantity degrades flood control capability
- Many techniques that improve *Aesthetics*
  - Higher *Cost* to implement
  - Higher *Cost* to maintain

Homeowner Communication: Quarterly News Letter

- Provide Homeowners with the knowledge and understanding
  - Why CPCSA must manage their ponds
  - What process CPCSA must manage
  - How CPCSA will manage those processes
  - Who needs to take action
    - Pond Committee and Board of Directors
    - Homeowner good housekeeping
- Provide Homeowners
  - Planned activities
  - Accomplished activities

Homeowner Communication: Web Based Education

- CPCSA Pond Committee Organizing Principles
  - Goals and Vision
  - Technical and Practical Objectives
- Story of why we need to implement pond management
  - Story of the river aging
  - Story of river eutrophication
  - Story of sediments
  - Story of nutrients
- Processes required to manage our ponds
  - Controls on sedimentation
  - Controls on nutrients
- Actions that need to be taken for realization of our goals
  - Pond Committee actions
  - Homeowner actions

BACKUP

CPCSA Pond Education

Why Pond Education

- To provide CPCSA Homeowners with the knowledge and understanding of
  - Why CPCSA must manage their ponds
  - What process CPCSA must manage
  - How CPCSA will manage those processes
  - Who needs to take action
    - CPCSA and the pond committee
    - Homeowner good housekeeping

Table of Contents

Goals and Vison of the CPCSA

CPCSA Vision

Vision – The CPCSA will pursue cost effective Storm Retention Pond System management practices that are considered sustainable and of limited impact. The CPCSA will minimize the use of herbicide, fertilizer and other chemical methods while maximizing the use of natural vegetation and accepted engineering solutions to attain water quality goals while enhancing the aesthetics of common areas and maintaining value for the homeowners

CPCSA Technical and Practical Objectives

CPCSA Objectives for our Ponds and Lake

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4. COST MINIMIZATION of methods chosen that include both initial installation, yearly maintenance, and long term water quality requirements

AESTHETICS

- Maintain Crowfield Plantation Homeowners property values
- Keep CPCSA ponds, lakes and storm water structures
  - Clean and free of trash
  - Low amounts of vegetation and algae
  - Shore lines populated with attractive grasses, bushes and trees
- Enhance the natural beauty of our community

COST

- Minimize the household cost
  - Housekeeping maintenance activity
  - Major projects such as dredging
- Develop and execute policies and processes that are
  - Effective
  - Meet technical goals
  - Cost sensitive
  - Maintain the value of homeowners property

WATER QUANTITY

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Balancing the Objectives

- CPCSA will meet Water Quality objectives – it's the law
- CPCSA will balance the other objectives to obtain the best result for our community

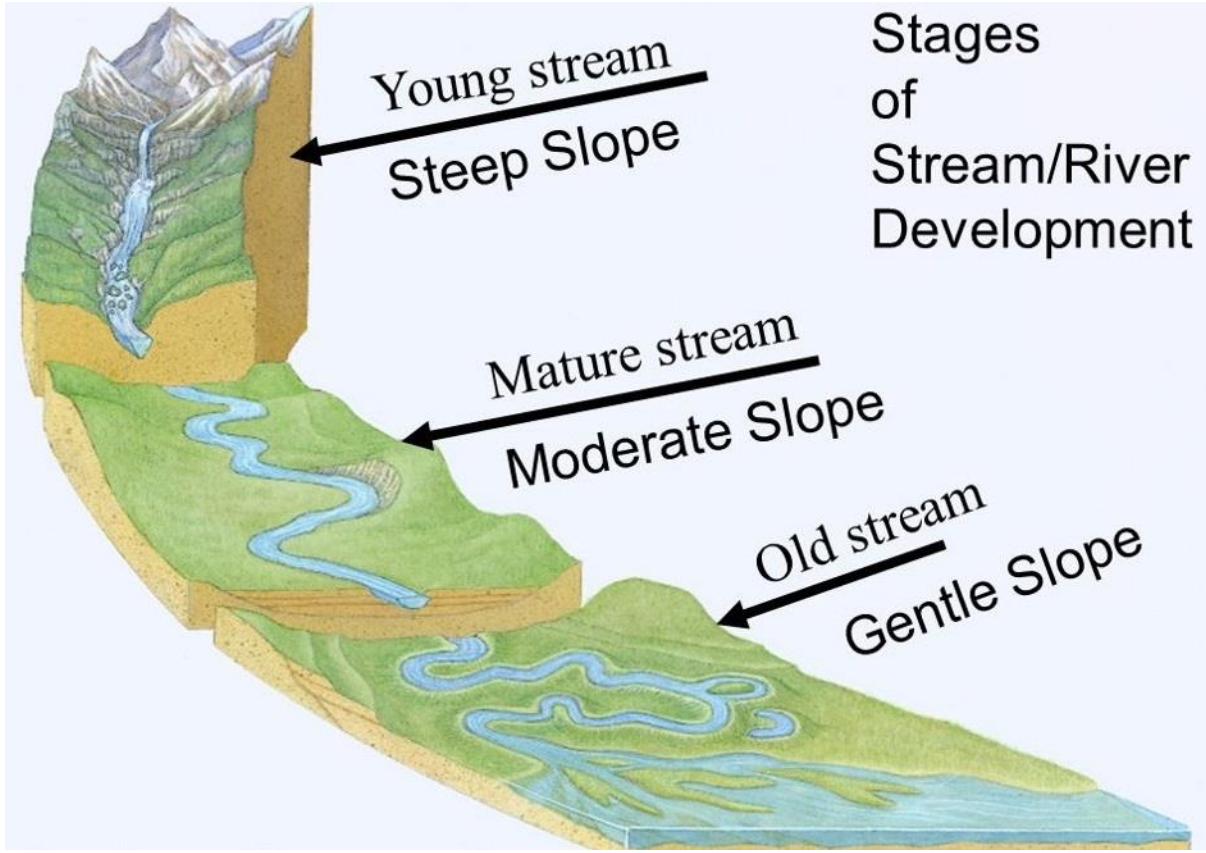
The Story of River Maturation

Maturation of Rivers and Lakes

- Rivers and lakes have two salient attributes
  - Age
  - Eutrophication

Three Stages of River Aging

- Water systems age naturally with the accumulation of sediment
- Rivers and lakes have three general classifications
  - Young
  - Mature
  - Old



Young Rivers and Lakes

- A river in its youthful stage follows a relatively straight course.
- Its gradient is steep and it will usually be found flowing through a V-shaped valley.
- There may only be a slight or a complete absence of a floodplain, which is the flattened area to the side of the river that is subject to flooding.
- The flow velocity of a river in its youthful stage is high and there are sometimes rapids along its course

Mature Rivers and Lakes

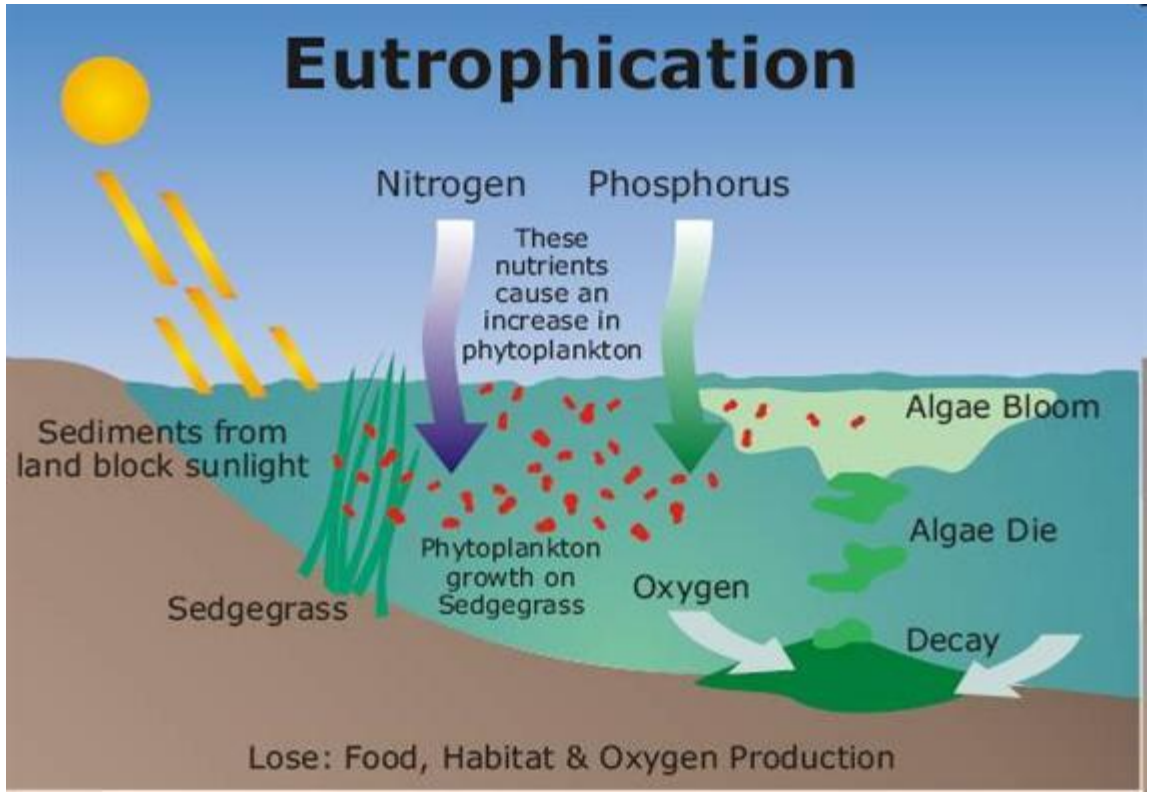
- A mature river does not flow as quickly as a youthful one
- It has eroded its river bed down to a lower depth and there is a greater area to accommodate a much larger volume of water to move through it.
- There are more tributaries feeding a mature river, its floodplains have increased and its channels have eroded to a wider distance.
- The extent of the channel widening will be greater than the extent of its depth.
- The Mississippi River and the Thames are examples of mature rivers.

Old River and Lakes

- Old rivers flow slowest
- Their rate of erosion is counteracted by the degree of sediment they deposit.
- Their course is no longer straight and widened floodplains are a common characteristic.
- An old river rests in an almost flat valley as a result of the many years of erosion that have taken place.
- The Nile and the Ganges are examples of old rivers.

What is Eutrophication?

- Eutrophication is the process of enriching an ecosystem with nutrients, primarily nitrogen and phosphorous.
  - It can occur naturally in aging lakes.
  - Humans can also introduce these nutrients into an ecosystem, at which point it is called artificial eutrophication.



What is Eutrophication?

- Fertilizers used in farming or on lawns can be washed into nearby water bodies, enhancing their nutrient levels.
- Eutrophication can lead to extensive vegetative growth and algal blooms.
- Eutrophication can both benefit and, from time to time, harm the ecosystem.
- A balanced and healthy nutrient level in a lake or pond is always the goal.